

ABT

Spec. 45606

DIVISION C2

BIDDING DOCUMENTS - PROPOSAL SCHEDULE

- b. In support of the stated guarantees, the bidder shall provide clear commitments in the following areas:

CLEAR COMMITMENTS	
The Nature of Remedial Efforts That Will Occur to Achieve Guaranteed Performance in Each Area	
The Approximate or Typical Time Frame Associated with Resolution of Each of the Stated Performance Guarantees	
The Company or Organization Expected to Provide the Applicable Resources Associated with the Remedial Work (Modifications, Testing, and Operational)	
The Ultimate Monetary Compensation Offered by the Original Equipment Manufacturer (OEM)	

2. Prices: The price or prices shall be according to the following bid pricing sheet:

BID PRICING SHEET	
Bid Price to Purchase Forty-Eight (48) Low NOx Burners, Per Specifications, Without Scanners:	\$ 2,237,415.00
Bid Price to Purchase Forty-Eight (48) Scanners and Ancillary Hardware, Per Specifications:	\$ 157,130.00
Bid Price to Install Forty-Eight (48) Burners and Associated Flame Detection Systems:	2,394,546 \$ 1,473,130.00
TOTAL BID PRICE:	\$ 3,867,675.00

3. Cash Terms: A discount for prompt payment is offered of 0% percent for Contract payments made within 30 calendar days after date of acceptance or delivery and receipt of invoice.
4. Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.
5. Manufacturer: Advanced Burner Technologies and IRIS or ABB (option)
6. Location of Point of Manufacture: USA

PART C- DIVISION C2**BIDDING DOCUMENTS - PROPOSAL SCHEDULE**

1. Proposal is hereby made to furnish and deliver to IPSC Unit 2 Low NOx Burners, F.O.B. IPSC dock, full freight allowed in accordance with **Specifications 45606**, the following:
- a. **Burner and Scanner Performance:** The new burners shall provide for a continuous boiler operation of 6,900,000 pounds/hour output, 1,005°F superheat and 1,005°F reheat temperature under all operating conditions. Bidders shall state the following burner and scanner performance guarantees and submit with the bid package:

BURNER AND SCANNER PERFORMANCE GUARANTEES	
Maximum Burner Nox and CO Production Under All Modes of Operation:	NOx=0.33 ^{lb} /mbtu CO=200 ppm
Maximum Burner BTU Throughput:	> 220 MBtu/hr
Burner and Scanner System Temperature Tolerance and Thermal Degradation Life:	Burner Tip=2000°F Scanner Electronic=140°F
Time Within Which Burner Register Assembly Shall Remain Fully Operable By Hand:	Past Guarantee Period
Combustion Zone Stability (Ignition Location/Stability, Flame Shape/Color):	Bright Flame in throat
Ash Deposition (At Burner Throat, OFA Ports, and Superheat Pendants):	Burner Throats & SH No add'l from current
Maximum Burner Out-Of-Service Cooling Air Requirements (CFM Per Compartment):	Scanners= 15 SCFM at 10"W.C.
Minimum In-Service Air Flow With Associated Emissions (Assuming 10 Percent Total Overfire Air Flow):	See Proposal Sec. 4
Maximum In-Service Air Flow With Associated Emissions (Assuming 10 Percent Total Overfire Air Flow):	See Proposal Sec. 4
Maximum Wear Life of Primary Air/Coal Path Components (Minimum Four (4) Years):	Nozzles: 6-8 yrs. ⁺ Fuel Dist. 4-6 yrs. +

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7. Brand and Catalog Number or Other Designation: OPTI-FLOWTM
Low NOx Burner, IR-P532/5552 or Safeflame DFSTM

8. Form of Business Organization: The bidder shall state below the form of its business organization.

9. Bidder is a: Corporation, organized under the laws of the state of NJ.
(Corporation, Partnership, Limited Partnership, Individual)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

10. Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name: Sal Ferrara Telephone No: 908-470-0721

Address: 350 Main Street, Suite 5, Bedminster, NJ 07921

(If different, the address of bidder's chief executive office is:) _____

From: "Sal Ferrara" <sal@advancedburner.com>
To: "Phil Hailes" <Phil-H@ipsc.com>
Date: 9/3/2003 2:39:52 PM
Subject: Re: Exception.....6.8 Div F2,

Phil,

Your spec. paragraph, Article 5e (Section 6.8 Division F2.....), can remain as written. We were clarifying what we intend on supplying to meet your requirement. We are just unsure of the terminology "cold junction block" however we believe we are in compliance with this. If not, we would supply whatever you need on thermocouple termination interface.

Also, I attached additional clarifications to our proposal Section 6.4 in answer to your telephone questions from earlier today. Please let me know if there is anything else you need.

regards,

Sal

----- Original Message -----

From: "Phil Hailes" <Phil-H@ipsc.com>
To: <sal@advancedburner.com>
Sent: Wednesday, September 03, 2003 3:04 PM
Subject: Exception.....6.8 Div F2,

> Sal,

>

> When you sent your hard copy book, you did not include page 4 of
> section 6. We discovered the error when reviewing the electronic
> version that you had recently sent to me.

>

> That being said, your exception to Article 5e (Section 6.8 Division
> F2.....), isn't workable to us. We need to leave the paragraph as-is.
> We need to have the temperature signals run to a cold junction block out
> side the windbox. Perhaps you're not disagreeing with our statement,
> but merely adding to it.

>

> Comments?

>

> Phil

>

ABT's experience covers the range of US coals from Texas lignite and PRB to high sulfur eastern bituminous. The following is a partial list of several large boilers retrofitted by ABT, including those with OFA systems. Although some of these have been published we ask that the recipient maintain this list and its information "Company Confidential".

1. Deseret, Bonanza #1: May 1997

A 440 MW Foster Wheeler boiler firing western bituminous coal was retrofitted in May 1997 with 20 Opti-Flow low NO_x burners. NO_x emissions before the retrofit, with the original Foster Wheeler low NO_x burners, were typically in the 0.55 to 0.6 range. After the retrofit, with the ABT low NO_x fuel injectors and dual register modifications, NO_x is approximately 0.35. In spring 2000, three of the five mills were replaced with larger units and the new mills' burners were upgraded to handle the higher capacity. The boiler now produces 500 MW with no increase in NO_x or detrimental impacts to boiler performance. Burner coking and fires have been eliminated, as have burner eyebrows and furnace slag.

Fuel is Western Bituminous coal from Utah and Colorado.

Contact: Dan Howell 435-781-5718

2. C&SW (now part of AEP), Oklaunion #1: 1999 and 2000(done in two stages)

A 720 MW Foster Wheeler boiler firing PRB coal was retrofitted with ABT fuel injectors and modified secondary air flow dividers. The NO_x emissions were reduced from about 0.45 with the OEM low NO_x burners to below 0.25. The unit is not equipped with OFA. The total number of burners supplied was 20.

Fuel is PRB

Contact: Daryl Phariss 940-886-2739

3. AEP/SWEPCO, Welsh #1:

A 560 MW B&W boiler with 42 burners (NO_x with OEM dual register low NO_x burners was ~ 0.38). Unit was retrofitted with ABT Opti-Flow low NO_x burners in the fall of 1999; initially no OFA ports were installed. Operating with all burners in service, NO_x was typically in the 0.26 to 0.28 range. With one top mill out of service and cooling air flow only, NO_x was in the 0.2 – 0.22 range.

In the fall of 2001, ABT's OFA system was installed at Welsh #1. With the OFA ports open, NO_x has been reduced to the mid-teens with all mills in service.

Fuel is PRB.

4. AEP/SWEPCO, Pirkey #1: Fall 2001

A 700 MW B&W boiler firing Texas lignite (NO_x with OEM dual register low NO_x burners was ~ 0.36 to 0.38). The unit was completely retrofitted with 56 ABT low NO_x burners and OFA in the fall of 2001. NO_x emissions, with the OFA ports closed, have been lowered to approximately 0.22. Operation of the OFA system has been very successful in that the boiler can operate at full load with NO_x emissions at approximately $0.15 \text{ lb}/10^6 \text{ Btu}$. However, normal day-to-day operation is at the Texas limit of 0.165.

Contact: Kent Randal 318-673-3813 Pirkey and Welsh Plants

5. Kentucky Utilities, Ghent #3(1998)and #4(1999):

Two 540 MW FW boilers firing Kentucky bituminous coal. NO_x emissions of 0.55 to 0.7 without OFA and about 0.45 with OFA ports open were attained with the OEM low NO_x burners and OFA system. ABT replaced all 24 fuel injectors, upgraded the FW dual register registers, and supplied a new OFA system to each boiler. Unit #3 was converted in the fall of 1998 and Unit #4 in the fall of 1999. When firing 100% E. bituminous coal NO_x is about 0.4 with OFA ports closed and about 0.3 with OFA ports open. When firing 100% PRB coal, Ghent #3 operated below 0.25 with the OFA ports closed, and below 0.2 with OFA ports open but unoptimized.

The units currently operate with a 50/50 blend of eastern bituminous coal and PRB. NO_x with OFA ports closed is ~ 0.3 .

The walls of these boilers are coated with refractory to raise furnace exit temperature so that steam temperatures can be attained (OEM boiler design problem). Prior to the retrofit, there were heavy slag falls from the walls; not a single slag fall has been observed on either boiler after the retrofits.

Contact: Steve Nix 502-347-4152

6. Kentucky Utilities Tyrone #3(Fall 2001) & GreenRiver #3(fall 2002)

These are 70MW front-wall fired B&W boilers with eight burners each. They fire eastern bituminous coal. Tyrone was started up in the Fall of 2001 and NO_x was reduced from about 0.8 to the low 0.3's without OFA (there is no OFA system on these units). Green River was converted in the Spring 2002 and also operates in the mid 0.3's. Unburned Carbon levels were reduced from the 10-12% range to the 6-8% range.

Contact: Tyrone: Tom Moore 859-879-3501
Green River: Tom Troost: 270-757-3113

7. Allegheny Energy, Harrison #1, 2 and 3: (1997 to 2000)

Three 660 MW FW boilers that are of pre-NSPS design with very hot, tight furnaces firing high sulfur, high slagging eastern bituminous coals. All units were upgraded by replacing the fuel injector with the ABT design, while maintaining the existing FW dual registers. NO_x emissions have been reduced from the 0.55 to 0.6 range to below 0.45 without overfire air. The furnaces are clean with no evidence of any operating or performance problems due to the new low NO_x burners. Unburned carbon is in the same range as before the retrofit.

Fuel is high sulfur bituminous coal.

Contact: Dean Hedrick 304-584-2350

8. Edison Mission Energy, LLC: Homer City Station Units 1&2

These are 650MW Foster Wheeler supercritical boilers equipped with 24 burners each; firing low to medium volatile E. bituminous coal. They are pre-NSPS boilers with extremely hot furnaces and, as such, are susceptible to corrosion. In the early '90s the boilers had been retrofitted with Foster Wheeler low NO_x burners. Overfire air was later installed in order to lower the NO_x to below 0.5.

Unit #2: One deck of four burners was retrofitted with ABT upgrades in the spring of 2000 and as a result:

Unit #1 has been retrofitted with a full complement of ABT burners in the spring of 2002. The primary purpose of the retrofit is to permit the units to operate at NO_x levels below 0.5 lb/MBtu with no overfire air. Previously, OFA was needed to attain levels in the mid-0.4s with consequent LOI, corrosion and slagging penalties. Supercritical boilers tend to suffer excessive corrosion when fired with bituminous coal and overfire air.

Contact: Russ Wingard: 724-479-6265

9. Jacksonville Electric Authority: St. Johns River Power Park Units 1&2

These are 700MW natural circulation boilers with 28 burners each and fire either domestic Eastern bituminous or Colombian coal; both mixed with 20% petcoke.

Spring 2002: Installed eight ABT low NO_x burner upgrades in Unit 2 with the goal of reducing NO_x and LOI. The demonstration has met or exceeded all goals and ABT has been awarded the complete retrofit for Unit 1, which started up the first week of April 2003. NO_x levels have been reduced nearly 25% with CO below 100ppm; stable flames have been demonstrated at approximately 50% mill load during low load boiler testing.

Contact: Bob Branning: 904-665-8806

Current large projects in progress:

1. JEA: St. Johns Unit #2

Engineering is underway for the supply of the remaining 20 burners and a complete Aerodynamic- OFA system in Spring 2004.

2. Owensboro Municipal Utilities: Elmer Smith Unit #2

This is a 300 MW T-fired boiler with four mills and 16 burners, firing high sulfur E. bituminous coal. ABT is supplying new Opti-Flow low NO_x burners, burner zone modifications and an Aerodynamic OFA system. Installation is scheduled for Spring 2004.

3. Grand Haven, MI, Board of Public Utilities

This is a 75 MW B&W unit for which ABT is supplying Opti-Flow low NO_x burners, A-OFA system and dynamic classifiers to attain NO_x levels below 0.2 firing bituminous coal.

This is a turn-key contract with all mechanical and electrical installation included in ABT's scope.

ABT Burner InfoBurner